CLAIMS:

1. An optical transmitter, for coupling to communication devices though an optical divider/coupler, having a source outputting a drive current, a light-emitting element, for outputting an optical signal to an optical fiber coupled to at least one of the communication devices, that is driven by the drive current for generating an optical output signal and, a modulator controlling the supply and cutoff of the drive current to the light-emitting element, comprising:

a detecting circuit that detects a source voltage; and

a control circuit that stops, if the detected source voltage is lower than the predetermined voltage, the supply of the drive current to the light-emitting element.

2. The optical transmitter according to claim 1, further comprising a logic circuit that stops the supply of the drive current to the light-emitting element in response to an externally supplied shut-down signal.

3. The optical transmitter according to claim 1, further comprising a temperature detector that measures a temperature of the light-emitting element and a pulse width correction circuit for varying, according to a measured temperature, a pulse width of a light-on/off signal to be supplied to the modulator.

4. The optical transmitter according to claim 1, wherein the light-emitting element is a laser diode, and

wherein the control circuit has a switch circuit that cuts off the drive current from the current source in the state of the voltage of the source being lower than a predetermined voltage.

5. The optical transmitter according to claim 1, further comprising:

a photodiode that converts part of an optical output signal of the light-emitting element into an electrical signal;

an automatic power control circuit that outputs, in response to the electrical signal from the photodiode, a control signal for making an optical power of the optical output signal constant; and

a switch circuit that transmits the control signal outputted from the automatic power control circuit to the current source if the detected source voltage is over the predetermined voltage.

6. The optical transmitter according to claim 5, wherein the automatic power control circuit has a buffer circuit that performs level conversion of the light-on/off signal, a first peak hold circuit that holds a maximum output level of the buffer circuit, a second peak hold circuit that holds a maximum output level of the photodiode, and a comparator that makes a comparison between output levels of the first peak hold circuit and the second peak hold circuit.

7. An optical transmitter, for coupling to communication devices though an optical divider/coupler, having a source outputting a drive current, a light-emitting element, for outputting optical signal to an optical fiber coupled to at least one of the communication devices, that is driven by the drive current for generating an optical output signal, and a modulator controlling the supply and cutoff of the drive current to the light-emitting element in response to an externally supplied light-on/off signal, the optical transmitter comprising:

a source voltage detector that monitors a source voltage; and

a light-emission cutoff circuit, connected to the modulator, that controls a level of the light-on/off signal to be inputted to the modulator in response to the monitored source voltage, wherein the modulator cuts off supply of the drive current to the light-emitting element when the monitored source voltage is lower than the predetermined voltage.

8. The optical transmitter according to claim 7, wherein the optical transmitter further comprises a switch circuit that stops, if the monitored source voltage is lower than the predetermined voltage, the supply of the drive current to the light-emitting element.

9. An optical transmitter, for coupling to communication devices though an optical divider/coupler, having a source outputting a drive current, a light-emitting element, for

outputting an optical signal to an optical fiber coupled to at least one of the communication devices, that is driven by the drive current for generating an optical output signal, a flip-flop circuit generating a light-on/off signal based on an externally supplied data signal and an externally supplied clock signal, and a modulator controlling the supply and cutoff of the drive current to the light-emitting element in response to the light-on/off signal, wherein

the flip-flop circuit changes the level of the light-on/off signal to be outputted to cause the modulator to cut off supply of the drive current when a source voltage is lower than a predetermined voltage and maintains a state in which the drive current is cut off until the data signal and the clock signal for directing light emission are supplied even after the source voltage has reached the predetermined voltage.

10. The optical transmitter according to claim 9, wherein the flip-flop circuit has a source voltage detector that detects whether the source voltage is found to be lower than the predetermined voltage,

a D-type flip-flop circuit composed of a first gate circuit that samples the data signal in synchronization with the clock signal, a first logic state hold circuit that holds an output of the first gate circuit, a second gate circuit that samples the output held in the first logic state hold circuit in synchronization with the clock signal, and a second

logic state hold circuit that holds an output of the second gate circuit, and

a first logic state modify circuit and a second logic state modify circuit that puts the hold states of the first logic state hold circuit and the second logic state hold circuit respectively into a low-level state when the source voltage is found to be lower than the predetermined voltage.

11. An optical transmitter, for coupling to communication devices though an optical divider/coupler, having a source outputting a drive current, a light-emitting element, for outputting optical signal to an optical fiber coupled to at least one of the communication devices, that is driven by the drive current for generating an optical output signal, and a modulator controlling a supply and cut off of the drive current to the light-emitting element, the optical transmitter comprising:

detecting means for detecting a source voltage; and

control means for stopping the supply of a drive current to the light-emitting element, if the source voltage is found to be lower than the predetermined voltage, the predetermined voltage being defined by the level causing erroneous operation of the light-emitting element.

12. The optical transmitter according to claim 11, wherein the control means stops the supply of the drive current from the source to the light-emitting element when the

detected source voltage is lower than the predetermined voltage.

13. The optical transmitter according to claim 11, wherein the modulator controls the supply and cutoff of the drive current to the light-emitting element in response to an externally supplied light-on/off signal, and

wherein the control means sets a level of the light-on/off signal to be inputted to the modulator, wherein the modulator cuts off supply of the drive current to the light-emitting element when the detected source voltage is lower than the predetermined voltage.

14. The optical transmitter according to claim 11, further comprising temperature detector means for measuring a temperature of the light-emitting element and a pulse width correction circuit for varying, according to a measured temperature, a pulse width of a light-on/off signal to be supplied to the modulator.

15. The optical transmitter according to claim 11, further comprising:

a photodiode for converting part of an optical output signal of the light-emitting element into an electrical signal;

automatic power control means for outputting, in response to the electrical signal from the photodiode, a control signal for making an optical power of the optical output signal constant; and

switch means for transmitting the control signal outputted from the automatic power control circuit to the current source if the source voltage is over the predetermined voltage.

16. A drive current controlling method for an optical transmitter, for coupling to communication devices though a optical divider/coupler, having a source outputting a drive current, a light-emitting element, for outputting an optical signal to an optical fiber coupled to at least one of the communication devices, that is driven by the drive current for generating an optical output signal, and a modulator controlling a supply and cutoff of the drive current to the light-emitting element, the method comprising:

detecting a source voltage of the source, and

stopping the supply of a drive current to the light-emitting element, if the source voltage is found to be lower than the predetermined voltage, the predetermined voltage being defined by the level causing erroneous operation of the light-emitting element and being greater than zero.

17. The method according to claim 16, wherein the stopping stops the supply of the drive current from the source to the light-emitting element.

18. The method according to claim 16, further comprising:

controlling the supply and cutoff of the drive current to the light-emitting element in response to an externally supplied light-on/off signal, and

wherein the controlling sets a level of the light-on/off signal to be inputted to the modulator and wherein the modulator cuts off supply of the drive current to the light-emitting element when the detected source voltage is lower than the predetermined voltage.

19. A drive current controlling method for an optical transmitter, for coupling to communication devices though an optical divider/coupler, having a source outputting a drive current, a light-emitting element, for outputting optical signals to an optical fiber coupled to at least one of the communication devices, that is driven by the drive current for generating an optical output signal, a flip-flop circuit generating a light-on/off signal based on an externally supplied data signal and an externally supplied clock signal, and a modulator controlling the supply and cutoff of the drive current to the light-emitting element in response to the light-on/off signal, the method comprising:

changing the level of the light-on/off signal to be outputted to cause the modulator to cut off supply of the drive current when a source voltage is lower than a predetermined voltage which is greater than zero; and

maintaining a state in which the drive current is cut off until the data signal and the clock signal for

directing light emission are supplied even after the source voltage has reached the predetermined voltage.

20. The method according to claim 19, wherein the maintaining further includes:

sampling the data signal in synchronization with the clock signal by a first gate circuit;

holding an output of the first gate circuit by a first logic state hold circuit;

sampling the output held in the first logic state hold circuit by a second gate circuit in synchronization with the clock signal;

holding an output of the second gate circuit by a second logic state; and

putting the hold states of the first logic state hold circuit and the second logic hold circuit respectively into a low-level state by a first logic state modify circuit and a second logic state modify circuit when the source voltage is lower than the predetermined voltage;

wherein the first gate circuit, the first logic state hold circuit, the second gate circuit and the second logic state hold circuit compose a D-type flip-flop circuit.